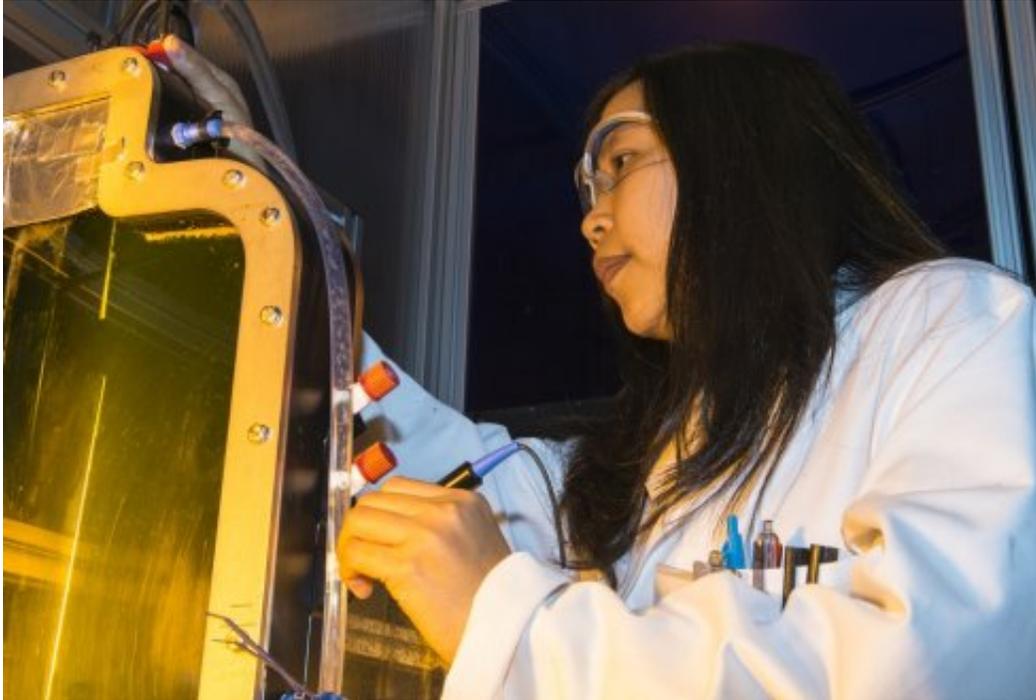


# Biofuel from human urine

September 30 2013

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Micro-algae can grow on undiluted human urine. This offers opportunities for new water purification methods and perhaps even for converting urine into usable chemical substances and biofuels.

Researcher Kanjana Tuantet published the results of tests on algae that had been grown on undiluted [urine](#) in the September edition of the scientific *Journal of Applied Phycology*. Her study showed that the algae thrived on urine, growing almost as quickly as on the substrates that are

usually used to cultivate algae.

The Sub-department of Environmental Technology of Wageningen University, where Tuantet works, is conducting research into environmentally friendly alternatives for the toilet. A system installed in the laboratory, for example, makes it possible to separate urine from faeces in the toilet. This saves water and opens the door for processing faeces closer to the source.

## **Micro-algae thrive on urine**

Urine accounts for around three-quarters of the nitrogen and half of the phosphorous in household wastewater. Turning excrement into usable products will help to relieve the pressure on the environment. Kanjana Tuantet discovered that fast-growing micro-algae thrive on the urine of the environmental technologists at Wageningen. All they need is a bit of extra magnesium. Micro-algae are a possible source of proteins and other biochemicals, as well as biofuels and fertilisers.

## **Large-scale cultivation**

Tuantet does point out that a few problems need to be addressed before algae can be cultivated on urine on a commercial scale. Cultivated algae will only be able to compete with production methods for biofuels if the algae yield other valuable products alongside fuel. 'We still need to find out whether more profitable strains of algae will also grow on urine.' Furthermore, a high-tech system is needed for the large-scale cultivation of algae on urine. The 'algae soup' is so thick that very little light is able to penetrate it. This problem could be solved by passing the algae through a system of thin transparent tubes, but this requires a more sizeable investment than a simple cultivation system whereby the [algae](#) grow in the open air. 'We have shown that it's theoretically possible, but

it's still too early to tell whether it's also commercially feasible.'

**More information:** [link.springer.com/article/10.1 ...  
07/s10811-013-0108-2](https://link.springer.com/article/10.1007/s10811-013-0108-2)

Provided by Wageningen University

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